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This review covers books, journal articles, and ERIC documents, 1966 and later. Much emphasis is placed on media program and project descriptions, rather than reports of completed research. The review points to trends of common media use and student performance and tries to shed some light on the general direction of future media efforts for the disadvantaged. These propositions are supported in the review: (1) media are useful in extending frames of reference and providing models and motivation for the disadvantaged; (2) media can emphasize each individual's approach to learning (thereby de-emphasizing the learning disadvantages with which some children come to school); (3) media can teach basic skills, but seem to be inadequate to teach assimilation skills to the disadvantaged; (4) projects that focus on older disadvantaged children or adults will have greater difficulty in achieving noticeable success in a short period of time, mainly because these individuals are more difficult to reach. Critique and marginal comments are provided by Adelaide Jablosky. Bibliography, including ERIC document numbers, is included. (Author)

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MEDIA AND THE DISADVANTAGED–

A REVIEW OF THE LITERATURE

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With Critique and Marginal Commentary
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MEDIA AND THE DISADVANTAGED– A REVIEW OF THE LITERATURE

One of the least explored avenues of possible assistance in teaching the disadvantaged has been the use of media, either to carry the burden of content or to act as supplementary reinforcement to a specially designed curriculum. In their 1965 survey of language programs for the disadvantaged, the National Council of Teachers of English visited 190 programs of 115 separate administrations and found that something less than one-third stressed audiovisual aids; these audiovisual programs were mainly preschool. Educational TV was emphasized in only 5% of the programs, and various mechanical aids were used in fewer than one-fifth of the programs. Of all the compensatory projects listed by Gordon and Wilkerson in their survey of programs and practices (1966), only 16 mention the use of media in *any* form. We have found a few studies in this area that seem to point to trends of common media use and student performance, and a few more that seem to throw some light on the general direction of future efforts.

What has been seen for this review are books, journal articles, and reports of research through ERIC. Much of the literature is what has become termed "fugitive"; unless there is a cue for search, the information goes unnoticed. While some references prior to 1966 have been included, the major effort has been concentrated on information available since 1966.

In organizing the material covered in these pages, we felt it was myopic to look only at the applied research in the field, for there is very little to be found. Accordingly, perhaps disproportionate attention has been paid to descriptions of media programs and projects.

Media are being used in the education of disadvantaged children and adults. But they are being used as aids in systems designed before technology became the moving force in education that it is today. It is a foregone conclusion that more media—audiovisual aids, films, filmstrips, tape recorders, phonographs and the expensive ones, ITV and CAI—will appear in the schools in the years to come. It is just as great a certainty that their supplementary status will continue unless a critical effort is made by educators to assess media capabilities and educational needs in a more comprehensive manner than is currently the case. There is almost no area with greater potential for innovative development than compensatory education.

This review of literature and bibliography on the uses of media to help the disadvantaged will state propositions that seem to be supported by at least some data. Such a format is perhaps premature, but we would like to try the approach to indicate, if nothing else, where more work needs to be done.

1. Media Are Useful in Extending Frames of Reference And Providing Models and Motivation for the Disadvantaged.

In an early effort a community group in Prince Edward County, Virginia, formed the Free Schools (September 1963-August 1964) to compensate disadvantaged children who were for four years without formal schooling due to the integration controversy ("Action Programs for the Disadvantaged," 1965). Negro children (1600 of them) were grouped according to age in a nongraded, team-teaching operation. Educational TV from Richmond, Virginia, was used one hour daily and dealt with music, art, science and

current events; 30 TV sets were placed in four schools. Motion pictures in the schools served as cultural events for these children since local theaters were segregated.

One of the most interesting projects involving TV for disadvantaged youngsters was completed in 1966 in Washington, D.C. (Mujerki, 1966). A program series called "Roundabout" demonstrated the use of televised material to enhance the educational experiences of disadvantaged preschool children and included separate materials for teachers using the program. The programs were designed to provide a variety of experiences and activities that could not be produced by teachers in the classrooms with traditional resources to enrich and extend the preschool curriculum. The series dealt with science and mathematical concepts, creative arts, social studies and social development.

The target population was approximately 400 children in five preschool centers in Washington, D.C. Staff evaluation of the programs found enthusiastic viewer response and frequent interaction between the child and the TV program. The central character of the series, a non-teacher, non-professional actor, proved to be an effective model for the children to emulate. The program series is now available for national distribution.(1)

New York public schools have devoted E.S.E.A. funds to teacher training in the use of audiovisual equipment and, as a result, have improved pupil interest in school. Teachers who participated in the training program stated that the effects of audiovisual instruction on students were increased attentiveness, greater willingness to practice oral communication skills, and more student question-and-answer exchanges in the classroom (Morrison, 1967). Also in New York, when selected schools participated in a project designed to provide maximum flexibility and supplies and support personnel (media specialists), normally high teacher turnover dropped, student attendance increased, and disciplinary suspensions decreased. Staff and student morale were high (Dubrowsy and Fornear, 1967).

Similarly, the introduction of audiovisual aids, including TV, in an Arkansas junior high school increased interest in school as shown by increased attendance (Bumpass and Gordon, 1967). In Los Angeles, an experimental program installed desk-top computers with simplified programing in six mid-city high schools that were in predominantly black areas. Attendance was so high that some

(1) There appear to be several inherent problems in TV programs projected into schools or school systems from a central station. The most serious problem stems from the teacher's inability to control the flow of the program. Extraneous or intrinsic distractions often interrupt the attention of some or all of the students. While the class is trying to resolve its confusion the program moves implacably on with neither the teacher nor the children being able to pick up the threads. All too often a well-conceived program is broadcast into a classroom with little or no preparation on the part of the teacher—and more often, expected follow-up activities are ignored or delayed until

their effectiveness is reduced critically. A third and persistent problem is technological—TV sets break down, and teachers are unable to adjust or repair them. By the time the audiovisual or custodial help arrives the program is over and its content lost irretrievably. Last and most serious for disadvantaged children is the fact that too many programs are irrelevant to the children's life experiences, to their evolving needs and to their learning styles. Most of these obstacles may be largely overcome with the extended use of videotape, screened by the teacher in advance, placed in a curricular sequence, and paced by her or preferably used by individual children or small groups of children at their own pace and to suit their immediate learning needs. It has been suggested that the disadvantaged learner could be reached more effectively by audiovisual means than by the printed word until he is motivated to make the transfer to the symbolic form. Videotape may be one of the means of closing the gap.

schools had standing room only for computer use. The changed student attitude toward learning was the major benefit ("Reaching the Student Who Won't Learn," 1967).(2)

To indicate the involvement of media not necessarily associated with the schools, we should note that numerous noncommercial TV and radio stations throughout the country, particularly in major urban areas, have concentrated many of their current community programming resources on the disadvantaged. Programs intended to increase public awareness of the problems faced by the disadvantaged and to assist the disadvantaged in identifying their self-image have been broadcast to the general public. Some stations are recruiting minority group representatives as staff members, writers and producers. Hundreds of programs have been aired, ranging from week-long day and night saturation programming devoted to the plight of the urban poor to a weekly phone-in program designed to give a voice to black students (NAEB Reports on ETV in the Ghetto, 1967-68).

A look into the future was provided in March 1968 when the U.S. Office of Education and the Carnegie and Ford Foundations announced joint sponsorship of an $8,000,000 experiment in the use of television for preschool teaching, primarily for youngsters in disadvantaged areas. Three other Federal agencies—the Office of Economic Opportunity, the National Institute of Child Health and Human Development, and the National Endowment for the Humanities—are also contributing to the project, supporting both programing

(2) This is one of many instances in which students are captured by bringing technology into the classroom from the world outside. Youngsters demonstrate remarkable facility in learning to handle complicated equipment. In addition, the student feels a sense of reality and self-determination in learning to learn, which in a way offers him an escape from the inertia most students feel in the self-contained classroom directed by controlling teachers.

and research. The Children's Television Workshop, as it is now called, will attempt to teach numbers, classic stories, the alphabet, language and the art of reasoning to preschoolers. The experiment, following a year of preliminary research and testing, will culminate in a daily, hour-long television program to be carried nationally on educational television channels beginning in the Fall of 1969 and running through the Spring of 1970–approximately 130 hours of original telecasting (Children's Television Workshop, 1968).

The hope of the Children's Television Workshop is to learn if provocative programing with educational values might not help youngsters get a head start for the schoolwork they will be exposed to in the near future. Up to 35 minutes per hour of each program will be short, animated, educational "commercials." The parent's reward, said a spokesman, will be the knowledge that hours now spent passively watching TV could be used to increase a child's readiness for learning. Strenuous effort is being made to motivate the viewing of the program by the target audience since this population sub-group is unlikely to view noncommercial TV without special stimulation.(3)

(3) Because young children learn at the preconscious as well as at the conscious level, they can be taught by TV programs and commercials. Offering well conceived programs to replace some of the pap presently offered on children's programs would be an improvement. But it is improbable that this approach will have the effect it should or could have. Poor people do not always have working television sets in their homes, and where there are sets, conflicting viewing interests make it unlikely that children would have continuity. "Passive watching" would continue and that is not what is needed by these or any children. Although they would be more expensive, day care facilities offering enriched learning experiences, in which the children actively participate, would be necessary to increase the children's readiness for learning.

2. Media Can Emphasize Each Individual's Approach to Learning (Thereby De-emphasizing the Learning Disadvantages With Which Some Children Come to School)

The child who comes from a culturally disadvantaged home seems to be unable to profit from his classroom experiences because they are based on a mode of environment adaptation foreign to him. He has learned at home that he will be rewarded only for behavior which maintains the status-quo. At school he is asked to contribute ideas for which he has no model, to tell of experiences he has not had, to offer enthusiasm when his home reward has been for inhibition, to respond to the encouragement of an authority figure when the only authoritative response he has known has been disciplinary.(4)

(4) While these are some of the problems disadvantaged children face when transferring from the home to one kind of school, many children find their schools continuing the deprivations of home. They are not asked to contribute ideas. They are not given the opportunity to tell of their experiences. They are not encouraged. The teacher's authoritative response continues to be disciplinary.

Research appears to indicate that children from deprived backgrounds need immediate (vs. delayed or symbolic) reward for performance. They lack motivation for doing school work and exhibit basic (non-organic) difficulties in visual, auditory and conceptual discrimination. These youngsters respond best to content-centered, concrete teaching procedures. Motivation intrinsic to learning games and puzzles could insure immediate gratification and sustained interest (Metzner, 1966).

Educational technology holds great potential for making the instructional process less formal; through programed materials and other self-tutoring devices, the learning environment can be engineered to avoid resented authority. Technology can also be used to saturate the disadvantaged neighborhood with media sources of compensatory experiences.(5)

(5) Rather than programed, perhaps the concept of sequential materials would be more appropriate. This is more than a semantic problem. Sequential materials which are well designed are most effectively used in the context of a problem-solving learning environment and are not expected to be effective without auxiliary experiences. There is the assumption that programed materials can and do stand by themselves. Programs are almost always limited to skill

Researchers have concluded that the disadvantaged generally are not "time" oriented. Consequently, verbal (written) materials as temporally ordered sources of abstraction, description and interpretation of experience are not realistic to the disadvantaged (Yamamota, 1967). Such teaching strategies as game-simulation are being tried with the disadvantaged in demonstration projects throughout the country. Studies of the successful use of various media by culturally different individuals are, to date, inconclusive. Some examples follow:

Pasadena, California, has been using a listening-viewing center for disadvantaged children since 1963 (Bernthal, 1963). The center

development at the lower levels. This probably results in some of their failings demonstrated by research. Unfortunately, even where curriculum materials have been well prepared, teachers are often unprepared to use them effectively. They have not been taught to diagnose the level of student capability or to prescribe appropriate activities to build skills or enhance knowledge. Teachers seldom understand reinforcement theory, and its application in the classroom is rare. This indicates the need for wholesale re-education of experienced teachers and drastic revision of pre-service teacher education.

consists of a table wired with headphones, one input jack, a phonograph and tape recorder. Filmstrips and other visual aids make it possible to combine media. The center can serve 12 children simultaneously. Eugenie Bernthal, director of the program, contends that the center is an introduction to inquiry, that it can teach specific concentration and discrimination skills, that individual instruction increases self-reliance by the absence of competition, and that fatigue and boredom are reduced. No data are available to aid in evaluating the project.(6)

The Willow Manor Oral Language Project in Oakland, California, developed special listening tapes to give children more opportunity to hear speech used well. Teachers examined the curriculum for situations that might require speech from children—storytelling, dramatics, singing, etc. Children also made recordings of their own voices (Gordon and Wilkerson, 1966).

Talking typewriters are currently being used in Brooklyn, Chicago, and Berkeley, Calif., to help disadvantaged children learn language skills (Typewriters Talk—Disadvantaged Children Listen," 1967). These typewriters are about the size of an upright piano with a visual component above the color-coded keyboard. Each machine costs around $30,000. The machine asks the student to type a specific letter. If the answer is wrong, the typewriter locks until the right key is pressed; then both visual and verbal reinforcement are provided. These systems can be programed to record stories dictated by students and then play them back while projecting appropriate color pictures. Sessions run 15-20 minutes with classroom follow-up. In Brooklyn, the typewriters are used by students from preschool through third grade, in junior and senior high schools, and by adults at night. Teacher observation in Brooklyn indicated that kindergarten children using these machines for six months were ahead of first grade children who had not used the machines.(7)

(6) While no data are available to aid in evaluating this project, the slow but steady spread of similar uses of media in individualizing instruction is beginning to show results with poor inner-city children, as well as with more advantaged students. (For further examples see: Jablonsky, Adelaide. A Selected ERIC Bibliography on Individualizing Instruction. *ERIC-IRCD Urban Disadvantaged Series, No. 2. Single copies are available from ERIC Information Retrieval Center on the Disadvantaged, Teachers College, Columbia University, New York, N.Y. 10027.)*

(7) In addition to talking typewriters, the less expensive talking page hardware has now been perfected, and some software is

evolving. Unfortunately, due to practical economic reasons, the content at the present time is more appropriate for suburban middle-class schools, but there are assurances that more relevant programs for poor urban students will be forthcoming.

Hartford-West Hartford, Conn., is using dial access information retrieval to enhance the "reality" of instruction for disadvantaged children. In a recent review of urban ghetto schools, Singer (1968) summarizes the common uses of media in the education of the disadvantaged:

> . . . a sampling of urban ghetto schools shows only sporadic use of programed learning materials, ETV, CAI, 8 mm loop projectors or . . . such conventional audiovisual techniques as film and slide projection and audiotape usage. . . . Furthermore, most programs are distributed and evaluated in a hit and miss manner. They are often completely irrelevant to the needs and desires of ghetto youngsters leading ghetto lives. They are print oriented and dull, used primarily as supplementary material with uniquely gifted or handicapped students.

3. Media Can Teach Basic Skills, But Seem to Be Inadequate To Teach Assimilation Skills to the Disadvantaged.

There simply are not many studies on applications of media to compensatory education problems with results in print. The studies which exist receive detailed examination in the pages to follow.

Literacy via TV

A very early entry in TV for compensatory education was a large-scale experiment in adult literacy training (Peerson, *et al.*, 1961). In June, 1960, a cooperative effort was made by eleven counties in Northern Alabama to reach over 100,000 adults known to be functionally illiterate. About 600 students over 40 years of age began the study course of 98 TV programs aired 3 nights a week for 8 months over stations in the ETV network. There was no attempt to estimate how many adults watched the programs at home without formal participation in the staffed viewing centers. Only 40% of the original enrollees completed the course.

The content of the programs was based on the simplified teaching alphabet developed by Laubach. Great emphasis was placed on practical applications of literacy skills such as phone dialing, check writing, map and street sign reading, etc. Additional reading materials and practice exercises supplemented the TV lessons. Students in the group viewing centers were informally divided into two conditions: some saw the TV lessons and used the accompanying workbook under the supervision of a proctor, while a small group received only in-person instruction based on the TV method, but not using the TV lessons. Standardized reading tests at the close of the program showed that TV with the proctor (not necessarily a skilled teacher) was as successful as direct teaching for word knowledge and discrimination.

The average reading level of adults who completed the course was second grade. TV students did less well on connected reading. The testing carried on throughout the program series allowed correlations between initial level and final achievement and indicated that final performance was determined only in a small way by the student's reading level at the start of the lessons (because of self-selected dropout, among other reasons). The authors concluded that TV with suitable supplementary material can work in a crash program on illiteracy.

Preschool skills via programed materials

From 1962 through 1966 a project was completed that measured the effect of programed instruction in special skills on ability patterns and academic achievement (Long, 1966). Subjects were two groups of preschool children, white and black, from two Southern rural school districts. Approximately half of the children were disadvantaged. The major hypothesis and five related questions predicted greater improvement on intelligence measures for children exposed to both programed procedures and kindergarten than for children exposed to kindergarten alone; children without kindergarten experience were used as controls. The programed materials were increasingly difficult discrimination tasks in perceptual accuracy, deductive skill, and spatial visualization.

Results of standardized intelligence measures for the longitudinal study showed differences between the white and black children but none supporting significantly improved performance with the programed materials. Both white and black control children showed more improvement than those in the experimental conditions at the end of the second year of regular school.

The language laboratory

In 1962, the Detroit Public Schools (Golden, 1962) undertook a project to evaluate the audio-language laboratory technique as a means of helping students to change undesirable regional speech patterns to conform to standard (northern urban) English. As part of the experiment, a set of English lessons was recorded on magnetic tape to explain the structure of the English language, and to improve articulation.

The subjects for the experimental language laboratory were four classes of 10th grade students in one high school. Each class had 28-30 students. Two classrooms of students were randomly assigned to the experimental group and two to the control group. During part of their normal classroom English lessons, experimental students were assigned to listening carrels to hear audio tapes of correct speech in lesson form; no written materials were given these students. Control group students received the same materials on the experimental tapes, but in written script form. The treatment sessions were approximately 15 minutes long and occurred once a week for 13 weeks.

The hypothesis being tested was that experimental students would do better in impromptu interviews and on oral exams based on extemporaneous speech than students in the control groups who did not have the benefit of the specially prepared tapes. A sub-hypothesis was that the taped lessons would have a significant effect on written work (as shown in a usage recognition test), in actual writing, and in attitude toward self-improvement (an inventory constructed by the experimenter). A complicated analysis of covariance was used with four control variables. The dependent variable was the posttest score on oral and written tests; the covariate was the score on pretests of the same dependent variables.

Results showed no differences between experimental and control groups in the written tests or in attitude toward self-improvement. On the oral test of extemporaneous speech, significant main effects and four significant interactions were found. Although the authors concluded that the taped lessons were effective in doing the job for which they were designed, they failed to specify the conditions under which the greatest likelihood of success would be found–among girls of high or low mental ability (as opposed to average ability) who attend morning English classes and whose parents are college graduates.(8)

(8) The fact that the program showed little success with boys and favored girls with high and low mental ability whose parents were college graduates reduces almost all expectation for success with the generalized poor urban population. Intense programs to bring regional speech closer to northern urban English, utilizing speech specialists working with classes on a weekly, long-term basis, have been generally more successful than this type of program and have, in addition, improved understanding of phonics. As a result, both reading and writing skills have been enhanced.

Readers vs. audiovisual techniques

A massive comparison of reading approaches to teach disadvantaged first grade students in New York City is one of the better research designs in compensatory education projects (Harris and Serwer, 1966). The program involved 48 teachers and 1150 students in a longitudinal study measuring the relative success of basal reader skills, language experience, and phono-visual teaching methods in beginning reading. The skills approach emphasized order, structure, built-in repetition and detailed lesson plans, while the phonovisual method concentrated on group or individual charts, workbooks, and word games. Language experience allowed the child's self-expressions to provide the bases for concept-building, language enrichment, and vocabulary development.

Students *and* teachers were assigned randomly to one of four conditions: language skills with basal reader, basal reader with phonovisual aids, language experience alone, and language experience with audiovisual aids. A wide variety of tests was used and every effort was made to control statistically for inherent differences in

aptitude or reading-readiness. Analyses of variance were done on several standardized tests; the only significant differences were between the basic approaches—skills or language experience—and not between methods.

Finer between-method comparisons, using other tests, revealed these specific differences:

> Performance with basal readers was consistently and significantly higher than other methods.
>
> The phonovisual method (basal readers with audiovisual aids) was liked by teachers but did not produce better results across the board, and
>
> Language experience with audiovisual aids was superior to language experience alone, but expensive. A delay in availability of appropriate equipment handicapped a true measure of effects.

Most of the obtained scores amounted to only one month's difference in progress between groups. A third progress report in 1967 found the skills-centered approach maintained its superiority.

Study skills center for English and math

In Los Angeles a Study Skills Center, located at a metropolitan area high school, was designed as a pilot effort to raise the educational achievement of disadvantaged pupils through individualized instruction (Los Angeles ESEA Title I Evaluation Reports, 1967). The center included a classroom with 28 carrels and 24 tables and chairs, a central area with library and work space, and a convertible foreign language and teaching machine laboratory. Programed instructional materials and electronic teaching equipment were provided. The center was utilized by pupils enrolled in the regular day school and by pupils in continuation classes and adult schools to complete requirements for a high school diploma. Experimental classes for day school students were conducted in English and mathematics; the center could accommodate a maximum of 93 at one time.

The center was in operation from December 1966 through June 1967. The equipment included: Mast teaching machines, Craig readers, Mark III Auto-Tutors, Min-Max machines, Language Masters and tapes, a thirty-unit specially equipped foreign language laboratory and console, controlled readers, programed tests, filmstrips, SRA kits, film projectors, a television set, opaque and overhead

projectors, a copying machine, a transparency maker, tape recorders and a duplicating machine.

A basic math class and a tenth grade English class were regularly scheduled in the Study Skills Center; each class had a comparable control class which did not meet in the center. The English classes were tested in October and again in June, using the Blumenthal Grammar Test No. 2600. Analysis of covariance showed that the Center class had improved more than the control group; the results were significant at the .01 level. The two math classes were tested in February and June, 1967, using the same form of the Stanford Achievement Advanced Arithmetic test. The class that used the Study Skills Center improved significantly at the .05 level over the comparison class in computation, but not in reasoning.(9)

(9) The basic math program may not have been directed at teaching reasoning. If the control groups did not demonstrate significant superiority in this area, then all aspects of the experimental program showed positive results. There is this and other evidence to support the proposal that improvement in teaching disadvantaged children will come through the use of centers equipped with similar hardware and even more effective software.

Preschool word skills via typewriter

At the New Nursery School, Greeley, Colorado, preschool children have spent 20 minutes daily in a special environment booth with an electric typewriter, Language Master and tape recorder (Nimnicht, 1967). The booths were modeled after the "Talking Typewriter" but at 1/20th the cost. Children progressed through a series of exercises designed to allow for free exploration, then recognition tasks, then typing words and then writing stories. Children in the experimental program had come from homes where sixth grade education was average for the parents. These children emerged from the program with IQ 10 points higher than comparable children not in the program; from 12 to 16% of the children actually began writing stories during the school year in which they participated. There was a .76 correlation between the number of times a child used the typewriter and the level of skill reached.(10)

(10) The findings of this project reinforce the conviction that providing enrichment and stimulation at an early age can equip disadvantaged children to be successful in school-related and other tasks. In some follow-up studies the apparent backsliding, when control groups catch up with the experimental group, is a function of the instructional environment reverting to the traditional mode.

The Stanford-Brentwood project

While learning by the disadvantaged is not the focus of the project, the Stanford-Brentwood computer assisted instruction laboratory has produced some interesting results in reading with minority group children. The information and data presented here are from visitors' introductions to the project and progress reports issued by Patrick Suppes and Richard Atkinson (Stanford Program in Computer Assisted Instruction Progress Reports, 1967).

The Stanford-Brentwood project began with a program of research and development in 1963 leading to an operational unit in 1966 at Brentwood Elementary School in East Palo Alto, Calif. The

physical installation accommodates 16 students simultaneously at individual computer consoles with earphones and cathode ray tube instructional displays to which students can respond with a light pen. The instruction in first grade reading and math involved over 100 children in the 1966-67 school year. Individualized instruction is geared to each learner, according to his own needs and progress, and data on student performance is immediately available to the classroom teacher. Teachers and computer specialists cooperate in designing and revising the curriculum as a team. Proctors are always available to students while they are in the computer laboratory, and the computer automatically signals the proctors when a student is having trouble with the lessons.

At the end of the first year of operation, a battery of reading tests was administered to first grade students involved in the computer-assisted reading program. To control for any "Hawthorne effect," reading achievement of these students was compared with the reading performance of first graders in the same school who had received computer-assisted mathematics lessons but classroom reading instruction with basal readers. Analysis of intelligence scores indicated that these two groups were drawn from the same population. Test results were examined in three-way analyses of variance (treatment, high/low IQ, sex) and no significant interactions were found. Observed main effects of IQ and sex were predictable. Scores on the achievement tests were consistently in favor of the computer-assisted reading program, and held when subscales of major tests were subjected to the same analyses. Here again, however, the computer-assisted students did not surpass the students who were taught by conventional classroom techniques in such assimilative tasks as reading comprehension and paragraph meaning in two standardized subtests.

The computerized instruction is having a beneficial effect. However, enthusiasm about the results should be tempered by a realization of the development costs involved. Direct costs for the project include about $500,000 for computer hardware and physical plant and another $500,000 for curriculum development. These figures do not include the cost of previous and concurrent research having direct application to the Stanford-Brentwood Project.(11)

(11) The initial costs of such programs are well justified by the benefits to be derived from this type of research. When they are later spread to greater numbers of disadvantaged children, the cost per

A comment on the projects reviewed

It is worth noting the trend of results that emerges from the projects just reviewed. In every case where a teaching device has been

child goes down, while the effectiveness of education goes up. Perhaps at some time in the future, hopefully soon, this country will weigh its priorities and discover the cost to society which evolves out of the disproportionate expenditure for wars and space exploration, as compared with educating our poor.

used—whether Language Master, phonovisual aids, or computer-assisted instruction—the performance of students on rote or drill tasks is significantly enhanced by the repetition of material and immediate reinforcement that these mechanical teachers so handily provide. However, when it comes to the assimilation of instruction—in connected reading, for example—these devices do not appear to produce better learning. Disadvantaged youngsters have learned to count, have increased their vocabularies and mastered grammar—and some adults have conquered functional illiteracy—with the aid of one technical apparatus or another. But relating skills to reality still seems to rest with the classroom teacher or with some kind of interpersonal exchange.

4. Projects That Focus on Older Disadvantaged Children or Adults Will Have Greater Difficulty in Achieving Noticeable Success in a Short Period of Time, Mainly Because These Individuals Are More Difficult to Reach

When funds are available for the education of the disadvantaged, one of the most difficult questions to answer is "Where will investment produce the greatest return in learning?" The evidence points with increasing intensity toward the preschool years, to a massive effort to provide positive experiences that need not be "unlearned" later. The evidence comes both from the research laboratories in institutions of higher learning and from experience in the practice of compensatory education. The literature on early childhood education is available elsewhere. The concluding section of this review will concentrate on the potential for media outside the classroom.

While not directly related to uses of media to teach disadvantaged students in the schools, the studies which follow deal with the kinds of media presentations preferred by different population subgroups. The evidence stands as indirect but relevant information to be considered when plans are made for instructional media—particularly the choice of medium—to help in compensatory education.

TV for continuing education

In order to assess the possible use of radio or TV to reach Spanish-speaking families in the Southwest, a survey of media behavior for this population group selected a random sample of Mexican-American homes in a low socio-economic area and a random sample of Anglo homes in a higher socio-economic area (Schenkkan and Millard, 1965). Ninth grade students in both areas were also surveyed. Questions covered general radio/TV interests and exposure with special attention given to KLRN, the ETV station in San Antonio, Texas. The sample was based on 1940 census data, and included 195 Mexican-American adults, 179 Mexican-American students, 67 Anglo adults and 212 Anglo students for a total of 653. Of the Anglo adults, 52% had some college with 12% having done graduate work. Of the Mexican-American adults, 81% had not completed high school, only 6% had at least some college, and 42% were not sufficiently bilingual to take a short language proficiency test

administered during the survey. No attempt was made in the analysis of survey results to take into account these educational differences.

When adults and students were asked on how many of the past seven days they had watched TV for more than 30 minutes, Mexican-American adults were found to be the least exposed. Mexican-American and Anglo adults had common TV entertainment preferences, while more than three times as many Anglo adults were interested in TV news. More Mexican-American adults watched Spanish programs and more Mexican-American teenagers used the radio. Among Mexican-American adults, the ETV station was seen as a source of Spanish-language programs although 60% of the Mexican-American adults reported they had not viewed any. The authors conclude that radio and TV are not viable media to reach the Spanish-speaking community when used alone.(12)

(12) These results are not surprising. The Mexican American families might not have properly functioning TV sets in their homes, they would have less leisure time, they would have larger family units with conflicts of watching preferences, and they would prefer programs in their own language. Perhaps we could learn from successful literacy programs in evolving nations that an arrangement of a small group of people assisted by media and coordinated by an indigenous person offers continuing support for learning, which is not present in the isolation of the home. Units could be set up on every block, at several convenient times, in all minority communities.

Different TV preferences

A similar audit of black and white TV preferences was based on a subsample of data from Standard Rate and Data Service, for 5000 American families of whom 9.9% were Negro (Carey, 1966). The subsample included 641 white and 84 black families. Program responses were based only on the previous day's viewing. The data yielded the audience size for 80 prime time programs. Blacks view more heavily on weekends; whites prefer early- to mid-week viewing. Programs emphasizing action within families or other social organizations are preferred by whites, while blacks admire individuals. From these data, Carey puts forth the hypotheses that 1) blacks do not identify with programs which are family-centered because these cohesive social units, as portrayed by TV, are irrelevant to them, 2) programs highly rated by blacks emphasize conflict, and 3) that physical action in situation comedy, for example, is preferred by blacks who do not have a strong "oral" culture.(13)

(13) The wording of hypothesis 1 is unfortunate. To imply that black familes are not cohesive social units is an unsupportable generalization. But in any case, most TV programs are irrelevant to blacks. Most TV programs are irrelevant to the poor. Many programs are out of contact with the reality of city life.

Adolescent media use

Data on adolescent use of mass media as socialization agents were presented by Gerson (1966) for 351 black and 272 white teenagers. Gerson developed indices of media reinforcement and norm acquisition constructed from media use patterns. Results indicate that the black adolescent uses mass media to learn how to behave like his white peer. Olson (1967) studied differences in black and white reading interests by questioning the total ninth grade populations of two recently integrated high schools in a middle-sized

Southeastern city. A Likert scale of 40 interest preference items was used, and analyses were made by content choice frequencies and rank orders of preferences. The data from this comparison show that the black adolescent displays less variability in choices and interests than the white teenager. Blacks more often read current materials (newspapers or magazines) that focus on social relations, romance, teenage problems, humor, and occupational areas. However, sex accounted for more difference in interest than did race.

Translating data into programs

These descriptive studies add little to what has come to light from other surveys or inventories of media preferences. Educational level is the major key to interests and media use for adults; verbal intelligence and sex seem to dictate this behavior for the young. The use of media for educational purposes cannot be rejected on the basis of the Schenkkan and Millard survey nor on the grounds of different interests. The task which media face is how best to translate these data on the backgrounds of potential educational users into educational programs that are meaningful to these segments of the audience and that will be, therefore, effective in reaching some educational goals.

A fine example of the application of communication principles to the use of TV to aid disadvantaged adults, called Operation Gap-Stop, was recently completed in Denver (Mendelsohn, 1967). In an urban housing development, 649 heads of households were interviewed to determine their information needs, their pattern of media use, and the usual demographic data. The interviews revealed that 90% had TV sets, watched TV daytime serials with devotion, and regarded TV as a reliable source of information as well as a companion. The interviews also uncovered the subject areas (such as where to go for legal aid, how to budget, what to do in case of medical emergencies, etc.) that these disadvantaged individuals considered valuable and about which they felt they knew very little. A series of eight programs was developed in daytime serial format and contained many small bits of information in the areas of greatest need for the target audience. The programs were broadcast for eight days at noon and repeated at 6 p.m. over the ETV station in Denver (KRMA).

Operation Gap-Stop also attempted to use four controlled motivational conditions—none, the interview contact, pamphlets, and money. More paid viewers saw half or more of the programs than did

members of any of the other motivational groups. Counting all viewers who saw four or more programs in the eight-program series, the information reached 24% of the target audience. In contrast, the average unsolicited share of the potential audience for ETV programs in this country runs between 1 and 5%. Follow-up interviews indicated that viewers liked the programs, learned from them, and would like to have more. This project serves to demonstrate how difficult it is to provide needed information to people who are not normally information-seeking individuals. The techniques used emphasize the elaborate arrangements necessary to help disadvantaged adults who are no longer members of any organized and identifiable unit, such as a school classroom.(14)

(14) It is interesting to note again that no attempt was made to overcome the isolation factor.

The experimental model developed in Denver is currently being replicated in Los Angeles with the large Mexican-American sub-population available in that area. Soap-opera "information" programs are broadcast over KCET, the educational TV outlet in Los Angeles, as part of a project underwritten by the Ford Foundation (For More Information: Dr. James Loper, KCET-TV).

Problems with progress

It would be desirable to present a tidy diagnostic and proscriptive summary of the material covered in this review. We were able to set out tentatively with some guesses about where future efforts were most likely to be successful and to state some reasons for our guesses. However, what has been talked about in these few pages represents only the best data we have to work from. The evidence is mixed.

Even the most casual reader of newspapers and the man who gets his bird's-eye view of the world from TV must be aware that the disadvantaged in the special projects have had a lot going for them, if interest and enthusiasm, not to mention available money, are good indicators. But the glitter of the gold that finances projects for the disadvantaged is dulled somewhat by the caliber of the evaluations designed to produce policy information for schools, on the one hand, and theoretical information for trained researchers on the other. When the U.S. Office of Education, in the summary of reports on ESEA, Title I, indicated that the evaluations were of insufficient quality to make any firm conclusions about the effectiveness of the legislation, the comment was not tendered lightly, nor should it go unnoticed (The States Report, 1967). When the need is so great and the results so disappointing, the direction of future support is far from clear.

Perhaps the greatest failure of these evaluations has been their assumption that a single treatment over a short span of time could have a dramatic impact on the learning or educational attitudes of disadvantaged youngsters. A significant effect has been the exception rather than the rule, but there are few projects that indicate their willingness to continue a course of study or a treatment over an extended period of time before passing any conclusive judgment on the results. The impression left with this reviewer is one of pass/fail decisions for programs after a short trial, frequently a semester.(15)

The question that remains unanswered is: How much time is required to counteract the trend toward cumulative learning deficit and the mounting frustrations endured by the disadvantaged?(16)

(15) These conclusions are serious indictments of present fragmented and frequently abbreviated attempts to improve education for the disadvantaged. These concerns parallel those voiced in the ERIC-IRCD Bulletin of March 1968, Some Trends in Education for the Disadvantaged. *available from the ERIC Document Reproduction Service as ED 021 942.*

(16) A more important question is whether we are going to continue to have to compensate for deficiencies, or whether we will establish quality education programs sufficient to meet the needs of our disadvantaged populations. The longer we wait the greater will be the deficit and the greater the cost of contending with the resulting frustrations. (This concern has been explored more extensively in Gordon, Edmund W., and Jablonsky, Adelaide. Compensatory Education in the Equalization of Educational Opportunity, *available from the ERIC Document Reproduction Service as ED 013 863.)*

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